REMARKS

Claims 1-12 remain pending in the application.

Claims 1-12 over Chen

In the Office Action, claims 1-12 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,500,900 to Chen et al. ("Chen"). The Applicant respectfully traverses the rejection.

Claims 1-4 and 9-12 recite a system and method utilizing a **plurality of regularizing models** to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets prior to a respective combination with a plurality of Eigen filters to provide a plurality of head related transfer functions with varying degrees of smoothness.

The Examiner alleges that the recited language "for use" is not a positive structural limitation (see Office Action, page 2). The Applicant respectfully disagrees. If the Examiner continues to allege that "for use" is not a positive limitation, the Examiner is respectfully requested to provide support for such an allegation.

Chen discloses a single spline model for producing regularized spatial transformation characteristic functions (See col. 5, lines 21-28). A regularization parameter within an equation used to obtain the spline model is used to control the trade-off between smoothness and fidelity (See Chen, col. 5, lines 29-31).

Thus, Chen relies on a **single** regularizing model to produce regularized spatial transformation characteristic functions. Chen fails to disclose or suggest a system and method utilizing a **plurality of regularizing models** adapted to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets prior to a respective combination with a plurality of Eigen filters to provide a plurality of head related transfer functions with varying degrees of smoothness, as recited by claims 1-4 and 9-12.

The Examiner alleges that Chen at col. 5, lines 5-43 disclose STCF's that are obtained by fitting a spline function over azimuth and elevation variables to STCF samples (See Office Action, page 8). The Examiner further

alleges that Chen's equations (5), (6) and (7) are computed based on a plurality of variables, with Chen's regularizing model providing a plurality of HRTF's with varying degrees of smoothness (See Office Action, page 8). The Applicants respectfully disagree.

Chen discloses, as the Examiner acknowledges, STCFs that are obtained by fitting a spline function (**singular**) fitted over azimuth and elevation variables to STCF samples. Moreover, the Examiner acknowledges that Chen discloses a regularizing model that provides a plurality of HRTF's (See Office Action, page 8). Thus, Chen discloses a **single** spline function, i.e., a regularizing model (**singular**) to produce regularized spatial transformation characteristic functions **NOT** a system and method utilizing a **plurality of** regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets prior to a respective combination with a plurality of Eigen filters to provide a plurality of head related transfer functions with varying degrees of smoothness, as recited by claims 1-4 and 9-12.

Moreover, Chen discloses equations (5), (6) and (7) that rely on a λ regularization parameter (See Chen, col. 5, line 27). The optimal value of the regularization parameter (**singular**) is determined by a method of generalization cross validation (See Chen, col. 5, lines 29-32). Thus, Chen discloses use of a **single** optimum λ regularization parameter to formulate a **single** spline function **NOT** a **plurality** of regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets, as recited by claims 1-4 and 9-12.

Moreover, the Examiner is arguing that Applicant's Fig. 2 is clearly met by Fig. 4 of Chen (See Office Action, page 8). However, it is the Applicant's **claims** that the Examiner is to review for patentability against the prior art **NOT** the Applicant's figures. Nevertheless, claims 1-4 and 9-12 are directed to, e.g, Applicant's Fig. 1 (the system and method performed by the system) and its accompanying text **lacking** a corresponding system and method in Chen, i.e., Chen fails to disclose or suggest a **plurality** of regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets, as recited by claims 1-4 and 9-12.

Claims 5-8 recite a plurality of regularizing models adapted to respectively regularize a plurality of spatial characteristic functions prior to a respective combination with a plurality of Eigen filters.

As discussed above, Chen discloses a single spline model for producing regularized spatial transformation characteristic functions (See col. 5, lines 21-28). A regularization parameter (singular) within an equation used to obtain the spline model is used to control the trade-off between smoothness and fidelity (Chen, col. 5, lines 29-31).

Thus, Chen relies on a **single** regularizing model to produce regularized spatial transformation characteristic functions. Chen fails to disclose or suggest a system and method utilizing a plurality of regularizing models adapted to respectively regularize a plurality of spatial characteristic functions prior to a respective combination with a plurality of Eigen filters, as recited by claims 5-8.

A benefit of utilizing a plurality of regularizing models to provide a plurality of head related transfer functions with varying degrees of smoothness is, e.g., an ability to more accurately process a sound signal. Chen relies on a single spline model that must make a trade-off between smoothness and fidelity (col. 5, lines 29-31). Applicant's claimed features overcome the deficiency of having to make a trade-off between smoothness and fidelity by using a plurality of regularizing models to provide varying degrees of smoothness. Varying degrees of smoothness can be selectively applied to differing portions of a sound signal depending on the particular relevance to an overall sound signal being produced, more accurately modeling a three-dimensional sound.

Accordingly, for at least all the above reasons, claims 1-12 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

William H. Bollman
Reg. No. 36,457

Manelli Denison & Selter PLLC
2000 M Street, NW
Suite 700
Washington, DC 20036-3307
TEL. (202) 261-1020
FAX. (202) 887-0336

WHB/df